chest formed circumferentially round the turbine shaft and containing the overload valve, which is mechanically controlled and admits high-pressure steam to an intermediate stage of the turbine. The main steam supply passes through the ports in the hubs previously referred to. It will be seen that the last four radial blade elements each consist of four blade rings in parallel, and the final stages are of the axial-flow impulse type as already referred to. The guide blades are mounted in separate cages, and the illustration shows the means of mounting the cages in the turbine. The method adopted is designed to relieve the guide blades of temperature stresses.

Steam packing is required to prevent excessive leakage along the shafts to atmosphere, and between the rotating turbine discs and the stationary steam chests. The shaft leakage is checked by compact labyrinth glands formed between the steam chest and the shaft ends.

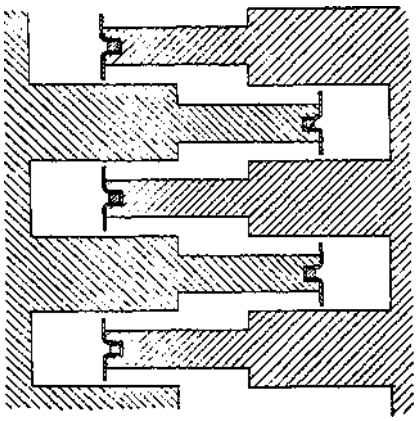

Fig. 43.—Labyrinth Packing for Liungstiorn

The packing to prevent leakage to the condenser consists of grooved discs fixed to each blade disc and one

to each steam chest. Fig. 43 shows the arrangement of grooving in opposite discs in relation to each other, the constriction being formed by nickel strips caulked in the projecting disc face and bent over to give a fine running clearance against the corresponding opposite walls of the groove within which the disc projection runs. In earlier designs these labyrinth packings were designed to balance the thrust due to the pressure acting on the blade discs, but according to latest practice this thrust is taken up by Michell thrust bearings on the main alternator shafts, this arrangement greatly simplifying the labyrinth disc design.

The main governor is of the centrifugal type, and actuates the throttle valve through relay gearing.

The turbine casing is split along the horizontal plane, and is bolted at either end to the main alternator shells. The turbine casing forms the bearing supports for the two inboard alternator bearings, and is so shaped as to form the adjoining end covers for the alternators. The exhaust flange is bolted directly on to the condenser inlet opening, the condenser acting as the main supporting agent for the whole unit, so that condenser foundations alone are required. The light weight of the turbine, coupled with the fact that no part of the casing is subjected to high-temperature steam, makes this arrangement practicable.